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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/644,603	08/20/2003	Kazuyuki Yamada	9319S-000540	5576
27572	7590	09/21/2005	EXAMINER	
HARNESSE, DICKEY & PIERCE, P.L.C.			WILLIAMS, ALEXANDER O	
P.O. BOX 828			ART UNIT	
BLOOMFIELD HILLS, MI 48303			PAPER NUMBER	
			2826	

DATE MAILED: 09/21/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

AK

Office Action Summary	Application No. 10/644,603	Applicant(s) YAMADA ET AL.	
	Examiner Alexander O. Williams	Art Unit 2826	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 18 July 2005.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 9-12 and 15 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 9-12 and 15 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

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Serial Number: 10/644603 Attorney's Docket #: 9319S-000540

Filing Date: 8/20/2003; claimed foreign priority to 7/15/2003 and 8/21/2002

Applicant: Yamada et al.

Examiner: Alexander Williams

Applicant's Amendment filed 7/18/05 to the election with traverse of Species I of figure 3 (claims 9-15) filed 1/21/05 is acknowledged.

Claims 1-8, 13, 14 and 16-23 have been cancelled.

The following is a quotation of the appropriate paragraphs of 35 U.S.C. § 102 that form the basis for the rejections under this section made in this Office action:
A person shall be entitled to a patent unless --

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

(e) the invention was described in a patent granted on an application for patent by another filed in the United States before the invention thereof by the applicant for patent, or on an international application by another who has fulfilled the requirements of paragraphs (1), (2), and (4) of section 371(c) of this title before the invention thereof by the applicant for patent.

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(f) or (g) prior art under 35 U.S.C. 103(a).

Claims 9 to 12 are rejected under 35 U.S.C. § 102(b) as being anticipated by Hatakeyama Tomoyuki (Japan Patent # 11-251363).

9. Tomoyuki (figures 1 to 13) specifically figures 1 and 2 show a semiconductor device mounting structure including a semiconductor device **1** having an electrode **3** and a substrate **5** having a wiring terminal **4** that is conductively connected to the electrode, wherein a width of the wiring terminal is smaller (**this portion of the 4 width being at the intersection of the bottom of 3**) than a width of the electrode (**this width being at the bottom of 3**); a recessed portion (**4b being the center recessed portion of 3 in which 4 fills**) formed in a center portion of the electrode **3**, the recessed portion (**4b being the center recessed portion of 3 in which 4 fills**) is constituted by a dimension corresponding to the width of the wiring terminal (**outer lining of 4 with in 3**); and the one of the electrode and the wiring terminal is embedded in a surface of the other of the electrode and the wiring terminal (**clearly shown in figure 4**).

10. The semiconductor device mounting structure of claim 9, Tomoyuki show wherein a cross-sectional shape of the one of the electrode and the wiring terminal decreases towards the other of the electrode and the wiring terminal.

11. The semiconductor device mounting structure of claim 9, Tomoyuki show wherein the one of the electrode and the wiring

terminal further comprises a material having a higher hardness than a hardness of the other of the electrode and the wiring terminal.

12. The semiconductor device mounting structure of claim 9, Tomoyuki show wherein the electrode and the wiring terminal both include a plurality of members, and widths of all of the one of the electrode and wiring terminals which are conductively connected to the other of the electrode and the wiring terminal are substantially the same.

Claims 9 to 12 are rejected under 35 U.S.C. § 102(e) as being anticipated by Kurashima Yohei (Japan Patent # 2001-223243).

9. Yohei (figures 1 to 12) specifically figure 1(B) show a semiconductor device mounting structure including a semiconductor device **10** having an electrode **16** and a substrate **20** having a wiring terminal **22** that is conductively connected to the electrode **22**, wherein a width (**from one end of 22 to the other end**) of the wiring terminal is smaller than a width of the electrode (**from one end of 16 to the other end**); a recessed portion (**at 27 is where a whole is within 16 and where 22 fill the recessed portion**) formed in a center portion of the electrode, the recessed portion is constituted by a dimension corresponding to the width of the wiring terminal; and the one of the electrode and the wiring terminal is embedded in a surface of the other of the electrode and the wiring terminal.

10. The semiconductor device mounting structure of claim 9, Yohei show wherein a cross-sectional shape of the one of the electrode and the wiring terminal decreases towards the other of the electrode and the wiring terminal.

11. The semiconductor device mounting structure of claim 9, Yohei show wherein the one of the electrode and the wiring terminal further comprises a material having a higher hardness

than a hardness of the other of the electrode and the wiring terminal.

12. The semiconductor device mounting structure of claim 9, Yohei show wherein the electrode and the wiring terminal both include a plurality of members, and widths of all of the one of the electrode and wiring terminals which are conductively connected to the other of the electrode and the wiring terminal are substantially the same.

Claim 15 is rejected under 35 U.S.C. § 103(a) as being unpatentable over Hatakeyama Tomoyuki (Japan Patent # 11-251363) in view of Applicant's Prior Art figures 10 and 11.

15. Tomoyuki (figures 1 to 13) specifically figures 1 and 2 show a device comprising: a retaining substance **6**; a wiring substrate **10** including a wiring terminal **4** conductively connected; and a semiconductor device **1** including an electrode **3** conductively connected to the wiring terminal; wherein: a width of the wiring terminal is smaller than a width of the electrode; and the wiring terminal is embedded in a surface of the electrode; a recessed portion formed in a center portion of the electrode, the recessed portion is constituted by a dimension corresponding to the width of the wiring terminal. Tomoyuki fail to explicitly show an electro-optical device comprising: an electro-optical panel retaining an electro-optical substance.

Applicant's Prior Art figures 10 and 11 discloses show an electro-optical device comprising: an electro-optical panel retaining an electro-optical substance for the purpose of enabling connection of a wiring board without the provision of soft material for lands of the board at mounting flip chip and moreover with a fine pitch.

Therefore, it would have been obvious to one of ordinary skill in the art to the teach of Applicant's Prior Art figures 10 and 11 to

modify Tomoyuki's device for the purpose of enabling connection of a wiring board without the provision of soft material for lands of the board at mounting flip chip and moreover with a fine pitch.

Claim 15 is rejected under 35 U.S.C. § 103(a) as being unpatentable over Kurashima Yohei (Japan Patent # 2001-223243) in view of Applicant's Prior Art figures 10 and 11.

15. Yohei (figures 1 to 12) specifically figure 3 show a device comprising: a retaining substance **27**; a wiring substrate **20** including a wiring terminal **22** conductively connected; and a semiconductor device **10** including an electrode **16** conductively connected to the wiring terminal; wherein: a width of the wiring terminal is smaller than a width of the electrode; and the wiring terminal is embedded in a surface of the electrode; a recessed portion formed in a center portion of the electrode, the recessed portion is constituted by a dimension corresponding to the width of the wiring terminal. Yohei fail to explicitly show an electro-optical device comprising: an electro-optical panel retaining an electro-optical substance.

Applicant's Prior Art figures 10 and 11 discloses show an electro-optical device comprising: an electro-optical panel retaining an electro-optical substance for the purpose of enabling connection of a wiring board without the provision of soft material for lands of the board at mounting flip chip and moreover with a fine pitch.

Therefore, it would have been obvious to one of ordinary skill in the art to the teach of Applicant's Prior Art figures 10 and 11 to modify Yohei's device for the purpose of enabling connection of a wiring board without the provision of soft material for lands of the board at mounting flip chip and moreover with a fine pitch.

Response

Applicant's arguments filed 7/18/05 have been fully considered, but are moot in view of the new grounds of rejections detailed above. Applicant states that "Tomoyuki reference fails to disclose or alone suggest a recessed portion formed in a center portion of an electrode, the recessed portion constituted by a dimension corresponding to the width of a wiring terminal, as set forth in amended claim 9 and 15" is not found to be persuasive. Clearly, Tomoyuki show a recessed portion formed in a center portion of an electrode, the recessed portion constituted by a dimension corresponding to the width of a wiring terminal as detailed in the further detailed rejection above by Tomoyuki. Applicant states that "Yohei reference fails to disclose or alone suggest a recessed portion formed in a center portion of an electrode, the recess portion constituted by a dimension corresponding to the width of the wiring terminal, as set forth in amended claims 9 and 15" is not found to be persuasive. Clearly, Yohei show a recessed portion formed in a center portion of an electrode, the recessed portion constituted by a dimension corresponding to the width of a wiring terminal as detailed in the further detailed rejection above by Yohei.

The insertion of Applicant's additional claimed language, for example, "in claims 9 and 15" cause for further search and consideration to make this action final.

Applicant's amendment necessitated the new grounds of rejection. Accordingly, **THIS ACTION IS MADE FINAL**. See M.P.E.P. § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 C.F.R. § 1.136(a).

A SHORTENED STATUTORY PERIOD FOR RESPONSE TO THIS FINAL ACTION IS SET TO EXPIRE THREE MONTHS FROM THE DATE OF THIS ACTION. IN THE EVENT A FIRST RESPONSE IS FILED WITHIN TWO MONTHS OF THE MAILING DATE OF THIS FINAL ACTION AND THE ADVISORY ACTION IS NOT MAILED UNTIL AFTER THE END OF THE THREE-MONTH SHORTENED

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STATUTORY PERIOD, THEN THE SHORTENED STATUTORY PERIOD WILL EXPIRE ON THE DATE THE ADVISORY ACTION IS MAILED, AND ANY EXTENSION FEE PURSUANT TO 37 C.F.R. § 1.136(a) WILL BE CALCULATED FROM THE MAILING DATE OF THE ADVISORY ACTION. IN NO EVENT WILL THE STATUTORY PERIOD FOR RESPONSE EXPIRE LATER THAN SIX MONTHS FROM THE DATE OF THIS FINAL ACTION.

The listed references are cited as of interest to this application, but not applied at this time.

Field of Search	Date
U.S. Class and subclass: 257/778,738,738,777,780,784,786,734,787,728,787,780, 29/837,740	4/17/05 9/15/05
Other Documentation: foreign patents and literature in 257/778,738,738,777,780,784,786,734,787,728,787,780, 29/837,740	4/17/05 9/15/05
Electronic data base(s): U.S. Patents EAST	4/17/05 9/15/05

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Alexander O. Williams whose telephone number is (571) 272 1924. The examiner can normally be reached on M-F 6:30-7:00PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Nathan Flynn can be reached on (571) 272 1915. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).



Alexander O Williams
Primary Examiner
Art Unit 2826

AOW
9/15/05